

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

JAN 29 2002

PATENT & TRADEMARK OFFICE

Paper

Number (Optional)

2000.010

Application Number

09/973,529

Applicants

Hans Thomann, et al.

Filing Date

10/9/01

4/1/03

6-16-03

U.S. PATENT DOCUMENTS

*EXAMINE R INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	3,812,457	5/21/74	Weller	340	15.5	
	A2	4,003,017	1/11/77	Bailey	340	15.5	
	A3	4,144,949	3/20/79	Silverman	181	106	
	A4	4,207,619	6/10/80	Klaveness	367	36	
	A5	4,460,059	7/17/84	Katz	181	102	
	A6	4,718,048	1/5/88	Staron, et al.	367	40	
	A7	4,829,489	5/9/89	Rector	367	82	
	A8	4,849,945	7/18/89	Widrow	367	30	
	A9	4,862,423	08/29/89	Rector	367	25	
	A10	4,873,675	10/10/89	Barr, Jr., et al.	367	57	
	A11	4,954,998	09/04/90	Rector	367	82	
	A12	4,965,774	10/23/90	Ng, et al.	367	75	
	A13	5,012,453	04/30/91	Katz	367	57	
	A14	5,109,946	05/05/92	Sorrells	181	106	
	A15	5,109,947	05/05/92	Rector, et al.	181	106	
	A16	5,144,589	09/01/92	Hardage	367	25	
	A17	5,144,591	09/01/92	Hardage	367	75	
	A18	5,191,557	03/02/93	Rector, et al.	367	41	
	A19	5,233,567	08/03/93	Calvert	367	27	
	A20	5,305,285	04/19/94	Naville, et al.	367	49	
	A21	5,372,207	12/13/94	Naville, et al.	1750	1	
	A22	5,438,170	08/01/95	Klaveness	181	106	
	A23	5,511,038	04/23/96	Angeleri, et al.	367	40	
	A24	5,585,556	12/17/96	Petersen, et al.	73	152.03	
	A25	5,758,539	06/02/98	Naville, et al.	73	152.03	
	A26	5,798,488	08/25/98	Beresford, et al.	181	102	
	A27	5,844,132	12/01/98	Fabret, et al.	73	152.45	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-A820

(also form PTO-1449)

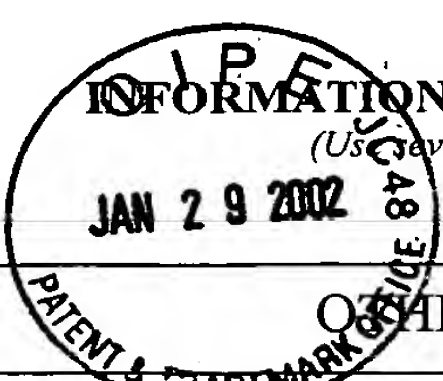
Copyright 1994-97 LegalStar

PO9A/REV03

Patent and Trademark Office* U.S. Department of Commerce

SHEET 1 OF 6

INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)					Serial Number (Optional) 2000.010	Application Number 09/973,529		
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> JAN 29 2002 <small>U.S. PATENT & TRADEMARK OFFICE</small> </div>					Applicants Hans Thomann, et al.			
U.S. PATENT DOCUMENTS					Filing Date 10/9/01			
*EXAMINER INITIAL		REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A28	5,835,883	11/10/98	Neff, et al.	702	7		
	A29	5,936,913	08/10/99	Gill, et al.	367	25		
	A30	6,176,323	01/23/01	Weirich, et al.	175	40		
	A31	6,206,108	3/27/01	MacDonald, et al.	175	24		
	A32	6,023,444	2/8/00	Naville	367	82		
	A33	6,262,941	7/17/01	Naville	367	82		
OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>								
	B1	Best, A.I., "The effect of Pressure on Ultrasonic Velocity and Attenuation in Near-Surface Sedimentary Rocks", Geophysical Prospecting, vol. 45, pp. 345-364, 1997.						
	B2	Best, A.I., McCann, C., and Sothcott, J., "The Relationships Between the Velocities, Attenuations and Petrophysical Properties of Reservoir Sedimentary Rocks", Geophysical Prospecting, vol. 42, pp. 151-178, 1994.						
	B3	Bowers, G.L., Pore Pressure Estimation from Velocity Data: Accounting for Overpressure Mechanisms Besides Undercompaction, 1994 IADC/SPE Drilling Conference, Dallas, Texas SPE 27488, pp. 515-530, 1994.						
	B4	Cadoret, T., Mavko, G., and Zinszner, B., "Fluid Distribution Effect on Sonic Attenuation in Partially Saturated Limestones," Geophysics, vol. 63, no. 1, pp. 154-160, February 1998.						
	B5	Christensen, N.I., and Wang, H.F., "The Influence of Pore Pressure and Confining Pressure on Dynamic Elastic Properties of Berea Sandstone," Geophysics, vol. 50, no. 2, pp. 207-213, February 1985.						
	B6	Dunn, K.J., "Acoustic Attenuation in Fluid-Saturated Porous Cylinders at Low Frequencies," J. Acoust. Soc. Am., vol. 79, no. 6, pp. 1709-1721, June 1986.						
	B7	Dunn, K.J., "Sample Boundary Effect in Acoustic Attenuation of Fluid-Saturated Porous Cylinders", J. Acoust. Soc. Am., vol. 81, no. 5, pp. 1259-1266, May 1987.						
	B8	Dvorkin, J. Nolen-Hoeksema, R., and Nur, A., "The Squirt-Flow Mechanism: Macroscopic Description", Geophysics, vol. 59, no. 3, pp. 428-438, March 1994.						
	B9	Dvorkin, J., and Nur, A., "Dynamic Poroelasticity: A Unified Model with the Squirt and the Biot Mechanisms", Geophysics, vol. 58, no. 4, pp. 524-533, April 1993.						
	B10	Dvorkin, J., Mavko, G., and Nur, A., "Squirt Flow in Fully Saturated Rocks," Geophysics, vol. 60, no. 1, pp. 97-107, January-February 1995.						
	B11	Esmersoy, C., et al., "Acoustic Imaging of Reservoir Structure from a Horizontal Well", The Leading Edge, pp. 940-946, July 1998.						
	B12	Goldberg, D., and Zinszner, B., "P-wave attenuation Measurements from Laboratory Resonance and Sonic Waveform Data", Geophysics, vol. 54, no. 1, pp. 76-81, January 1989.						
	B13	Green, D.H., and Wang, H.F., "Fluid Pressure Response to Undrained Compression in Saturated Sedimentary Rock", Geophysics, vol., 51, no. 4, pp. 948-956, April 1986.						
EXAMINER					DATE CONSIDERED			
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

 <p>INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)</p>		Patent Number (Optional) 2000.010	Application Number 09/973,529
Applicants Hans Thomann, et al.		Filing Date 10/9/01	Group Art Unit
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
B14		Han, De-hua, Nur, A., and Morgan, D., "Effects of Porosity and Clay Content on Wave Velocities in Sandstones", Geophysics, vol. 51, no. 11, pp. 2093-2107, November 1986.	
B15		Jones, T.D., "Pore Fluids and Frequency-Dependent Wave Propagation in Rocks", Geophysics, vol. 51, no. 10, pp. 1939-1953, October 1986.	
B16		Jones, T.D., and Nur, A., "Velocity and Attenuation in Sandstone at Elevated Temperatures and Pressures", Geophysical Research Letters, vol. 10, no. 2, pp. 140-143, February 1983.	
B17		Lucet, N., and Zinszner, B., "Effects of Heterogeneities and Anisotropy on Sonic and Ultrasonic Attenuation in Rocks", Geophysics, vol. 47, no. 8, pp. 1018-2026, August 1992.	
B18		Lucet, N., Rasolofosaon, P.N.J., and Zinszner, B., "Sonic Properties of Rocks Under Confining Pressure Using the Resonant Bar Technique", J. Acoust. Soc. Am., vol 89, no. 3, pp. 980-990, March 1991.	
B19		Mavko, G., and Jizba, D., "The Relation Between Seismic P- and S-wave Velocity Dispersion in Saturated Rocks", Geophysics, vol 59, no. 1, pp. 87-92, January 1994.	
B20		Menke, W., and Dubendorff, B., "Discriminating Intrinsic and Apparent Attenuation in Layered Rock", Geophysical Research Letters, vol. 12, no. 10, pp. 721-724, October 1985.	
B21		Morig, R., and Burkhardt, H., "Experimental Evidence for the Biot-Gardner Theory", Geophysics, vol. 54, no. 4, pp. 524-527, April 1989.	
B22		Murphy, F., III, "Effects of Partial Water Saturation on Attenuation in Massillon Sandstone and Vycor Porous Glass", J. Acoust. Soc. Am., vol. 71, no. 6, pp. 1458-1468, June 1982.	
B23		Tittman, B.R., et al. "Dissipation of Elastic Waves in Fluid Saturated Rocks", Physics and Chemistry of Porous Media, American Institute of Physics, pp. 131-143, 1984.	
B24		O'Connell, R. J., and Budiansky, B., "Viscoelastic Properties of Fluid-Saturated Cracked Solids", Journal of Geophysical Research, vol. 82, no. 36, pp. 5719-5735, December 10, 1977.	
B25		O'Hara, S.G., "Influence of Pressure, Temperature, and Pore Fluid on the Frequency-Dependent Attenuation of Elastic Waves in Berea Sandstone", Physical Review A, vol.32, no. 1, pp.472-488, July 1985.	
B26		O'Hara, S.G., "Elastic-Wave Attenuation in Fluid-Saturated Berea Sandstone", Geophysics, vol. 54, no. 6, pp. 785-788, June 1989.	
B27		Palmer, L.D., and Traviolia, M.L., "Attenuation by Squirt Flow in Undersaturated Gas Sands", Geophysics, vol. 45, no. 12, pp. 1780-1792, December 1980.	
B28		Parra, J.O., "The Transversely Isotropic Poroelastic Wave Equation Including the Biot and the Squirt Mechanisms: Theory and Application", Geophysics, vol. 62, no. 1, pp. 309-318, January-February 1997.	
B29		Prasad, M., and Manghnani, M.H., "Effects of Pore and Differential Pressure on Compressional Wave Velocity and Quality Factor in Berea and Michigan Sandstones", Geophysics, vol. 62, no. 4, pp. 1163-1176, July-August 1997.	
B30		Sams, M.S., Neep, J.P., Worthington, M.H., and King, M.S., "The Measurement of Velocity Dispersion and Frequency-Dependent Intrinsic Attenuation in Sedimentary Rocks", Geophysics, vol. 62, no. 5, pp. 1456-1464, September-October 1997.	
EXAMINER		DATE CONSIDERED	
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

JAN 29 2002

PATENT & TRADEMARK OFFICE

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

B31	Spencer, J.W., Jr., "Bulk and Shear Attenuation in Berea Sandstone: The Effects of Pore Fluids", Journal of Geophysical Research, vol. 84, no. B13, pp. 7521-7523, December 10, 1979.
B32	Spencer, J.W., Jr., "Stress Relaxations at Low Frequencies in Fluid-saturated Rocks: Attenuation and Modulus Dispersion", Journal of Geophysical Research, vol. 86, no. B3, pp. 1803-1812, March 10, 1981.
B33	Kamata, M., et al, "Drill- bit seismic a service for drilling optimization", SPWLA, 38 th Symposium, June 15-18, 1997.
B34	Kamata, M., Underhill, W., Meechan, R., and Nutt, L., "Real-time seismic-while-drilling offer savings, improves safety", Petrol. Eng. Vol. 70, no. 10, pp. 37-39, October 1997.
B35	McMillin, K, "Deepwater generates interesting seismic-while-drilling technology", Offshore, pp. 44, 104, March 1999.
B36	Meehan, R., et al, "Rekindling interest in seismic while drilling", Oilfield Review, pp. 4-13, January 1993.
B37	Meehan, R., Nutt, L., Dutta, N., and Menzies, J., "Seismic information helps predict drilling hazards, choose chasing point", Oil and Gas Journal, pp. 53-60, May 11, 1998.
B38	Nutt, L., "Drill bit seismic improves drilling data", The American Oil & Gas Reporter, pp. 57-62, November 1997.
B39	Poletto, F., et al, "Seismic while drilling using PDC signals – SEISBIT experience and perspectives", EAGE 59 th Conference and Technical Exhibition, Geneva, Switzerland, May 26-30, 1997.
B40	Ramaswamy, M., and Ioup, G.E., "Autocorrelation estimation using constrained iterative spectral deconvolution", Geophysics, vol. 54, no. 3, pp. 381-391, March 1989.
B41	Rector, J.W., III, "Drill string wave modes produced by a working drill bit", 62 nd Ann. Int. Mtg. SEC, Expanded Abstracts, pp. 155-158, 1992.
B42	Rector, J.W., III and Hardage, B.A., "Radiation pattern and seismic waves generated by a rollercone drill bit", Geophysics, vol. 57, no. 10, pp. 1319-1333, October 1992.
B43	Rector, J.W., III, and Marion, B.P., "The use of drill-bit energy as a downhole seismic source", Geophysics, vol. 56, no. 5, pp. 628-634, May 1991.
B44	Rector, J.W., III, Marion, B.P., and Hardage, R.A., "The use of an active drill bit for inverse VSP measurements", 7 th ASEG Conference and Exhibition, vol. 20, pp. 343-346, September 24-29, 1989.
B45	Rector, J.W., Marion, B.P., and Widow, B., "Use of drill bit energy as a downhole seismic source", 58 th Ann. Int. Mtg. Of SEG, Expanded Abstracts, pp. 161-164, 1988.
B46	Tittmann, B.R., Nadler, H., Clark, V.A., and Ahlberg, L.A., "Frequency dependence of seismic dissipation in saturated rock", Journal of Geophysical Research Letters, vol. 8, no. 1, pp. 36-38, January 1981.
B47	Todd, T., and Simmons, G., "Effect of pore pressure on the velocity of compressional waves in low-porosity rocks", Journal of Geophysical Research, vol. 77, no. 20, pp. 3731-3743, July 10, 1972.

XAMINER

DATE CONSIDERED

XAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ORM PTO-A820

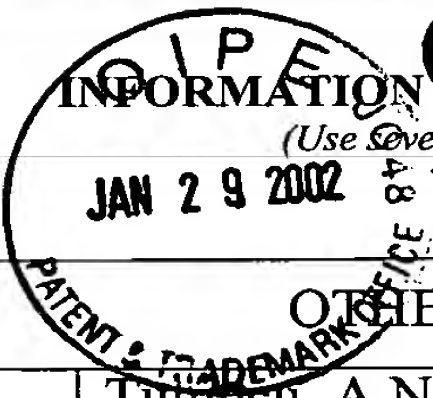
Iso form PTO-1449)

Copyright 1994-97 LegalStar

PO9A/REV03

Patent and Trademark Office* U.S. Department of Commerce

SHEET 4 OF 6

		Docket Number (Optional) 2000.010	Application Number 09/973,529
		Applicants Hans Thomann, et al.	
		Filing Date 10/9/01	Group Art Unit
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	B48	Tutuncu, A.N., Podio, A.L., and Sharma, M.M., "Nonlinear viscoelastic behavior of sedimentary rocks, Part II: Hysteresis effects and influence of type of fluid on elastic moduli", Geophysics, vol. 63, no. 1, pp. 195-203, January-February 1998.	
	B49	Tutuncu, A.N., Podio, A.L., Gregory, A.R., and Sharma, M.M., "Nonlinear viscoelastic behavior of sedimentary rocks, Part I: Effect of frequency and strain amplitude", Geophysics, vol. 63, no. 1, pp. 184-194, January-February 1998.	
	B50	Vo-thanh, D., "Effects of fluid viscosity on shear-wave attenuation in saturated sandstones", Geophysics, vol. 55, no. 6, pp. 712-722, June 1990.	
	B51	White, J.E., "Biot-Gardener theory of extensional waves in porous rods", Geophysics, vol. 51, no. 3, pp. 742-745, March 1986.	
	B52	Winkler, K.W., "Frequency dependent ultrasonic properties of high-porosity sandstones" Journal of Geophysical Research, vol. 88, no. B11, pp. 9493-9499, November 10, 1983.	
	B53	Winkler, K.W., "Dispersion analysis of velocity and attenuation in Berea sandstones", Journal of Geophysical Research, vol. 90, #B8, pp. 6793-6800, July 10, 1985.	
	B54	Winkler, K.W., and Nur, A., "Seismic attenuation: effects of pore fluids and frictional sliding", Geophysics, vol. 47#1, pp. 1-15, January 1982.	
	B55	Aleotti, L., et al, 1994, "Impact of drill-bit seismic method on explorative wells", EAGE-56 th Meeting and Technical Exhibition., Vienna, Austria, June 6-10, 1994.	
	B56	Aleotti, L., et al, "SEISBIT-Latest applications of seismic while drilling technology", 57 th EAGE Conference and Technical Exhibition, May 29-June 2, 1995.	
	B57	Aleotti, L., et al, "Seismic while-drilling technology: use and analysis of drill-bit seismic source in a cross-hole survey", Geophysical Prospecting, vol. 47, pp. 25-39, May-June, 1995.	
	B58	Bertelli, L., Savini, L., and Martera, M.D., 1997, "While Drilling Methodologies-the integration strategy and the impact of E&P activities", EAGE 59 th Conference and Technical Exhibition, Geneva, Switzerland, May 26-30, 1997.	
	B59	Borland, W.H., et al, "Drill bit seismic, vertical seismic profiling, and seismic depth imagining to aid drilling decisions in the Tho Tinh structure-Nam Con Son basin-Vietnam", 95 th Society of Exploration Geophysicists of Japan, Kyoto, October 23, 1996.	
	B60	Borland, W.H. and Drew, J, "Drilling Hazard Risk Reduction in Brunei Using Surface and Drill Bit Seismic Data", IADC Well Control Conference for the Asia Pacific Region, Singapore, December 4-5, 1997.	
	B61	Jackson, M., and Einchcomb, C., "Seismic While Drilling: Operational Experiences in Vietnam", World Oil, pp. 50, 53, March 1997.	
	B62	Williams, D.M., et al, 1984, "The Long Spaced Acoustic Logging tool", SPWLA 25 th Annual Logging Symposium, June 10-13, 1994.	
	B63	Dickinson, George, "Geological Aspects of Abnormal Reservoir Pressures in Gulf Coast Louisiana", Bulletin of the American Assoc. of Petroleum Geologists, Vol. 37, No. 2, pp. 410-432, February 1953.	
	B64	Payne, Michael A., "Looking Ahead with Vertical Seismic Profiles", Geophysics, Vol. 59, No. 8, pp. 1182-1191, August 1994.	

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

